

# The 191st ISIJ Meeting

## Date

March 11 to 13, 2026

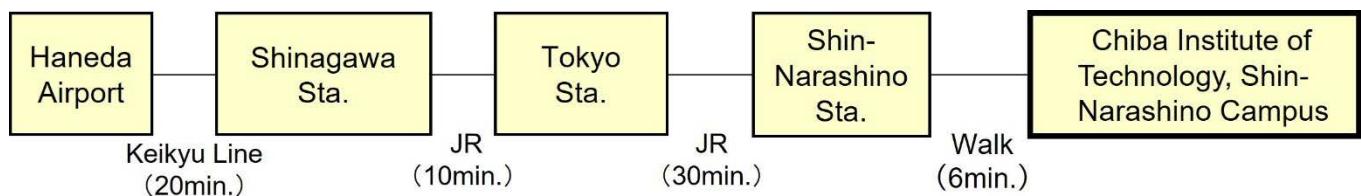
Reception: 8:15- 16:00 (March 11-12), 8:30 - 14:00 (March 13)

## Venue

Chiba Institute of Technology, Shin-Narashino Campus  
2-1-1, Shibazono, Narashino, Chiba, Japan 275-0023

## Access to Chiba Institute of Technology

Shin-Narashino Campus is a six-minute walk from the South Exit of Shin-Narashino Station on the JR Keiyō Line.



\* For more information, please see the following website.

<https://chibatech.jp/english/about/institute/access/#hdgLg5>

## On-site Check-In Procedures

Please print your participation certificate in color on A4-sized paper at 100% scale and present it at the conference reception desk. A name holder will be provided at the reception. Please fold the certificate into quarters and insert it into the holder.

## The 191st ISIJ Meeting Portal Site

For the program and the latest information, please visit the portal site for the 191st ISIJ Meeting.

<https://pub.confit.atlas.jp/ja/event/isij2026s>



JP



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## Campus Map

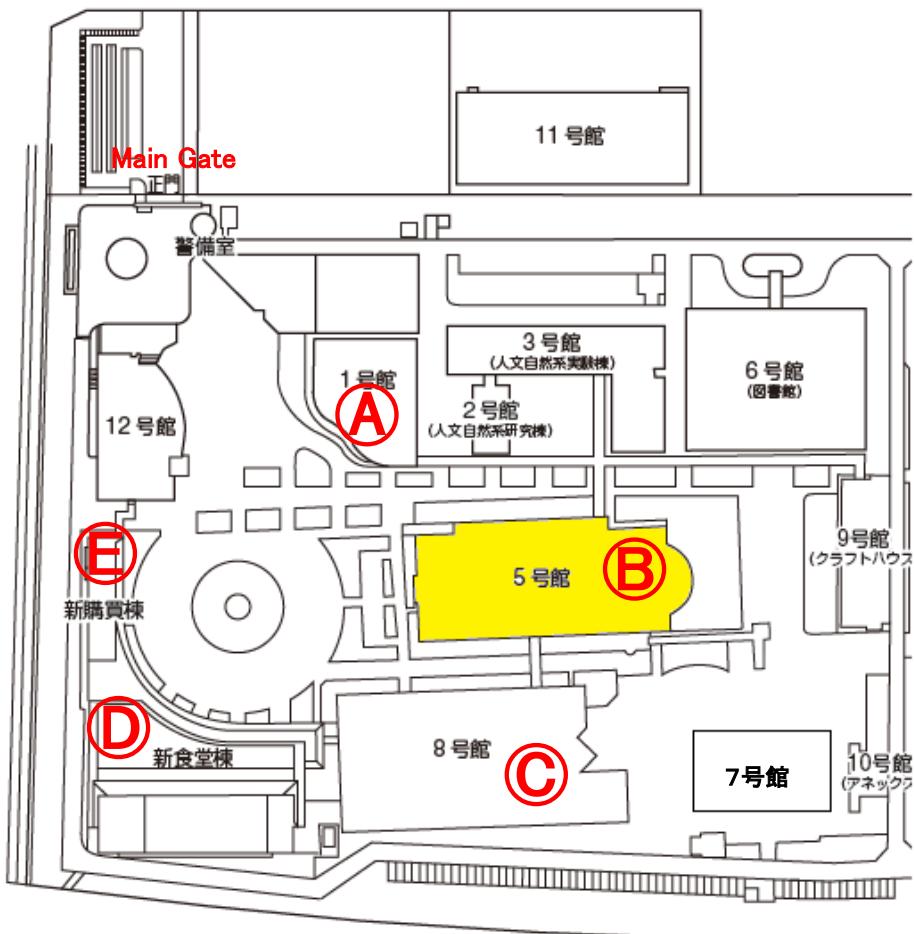
(A) Building No.1: Ceremony of conferment of the honorary membership and prize awarding, Special lecture meeting(1st Fl.)

(B) Building No.5: ISIJ Reception Desk & Secretariat(1st Fl.),

(C) Building No.8: Session Room 1-12(1st Fl. , 2nd Fl.)

(D) Canteen Building: Cafeteria(1st Fl.), Banquet, ISIJ Beer Party(2nd Fl.), Poster Session for Students(3rd Fl.)

(E) Shop

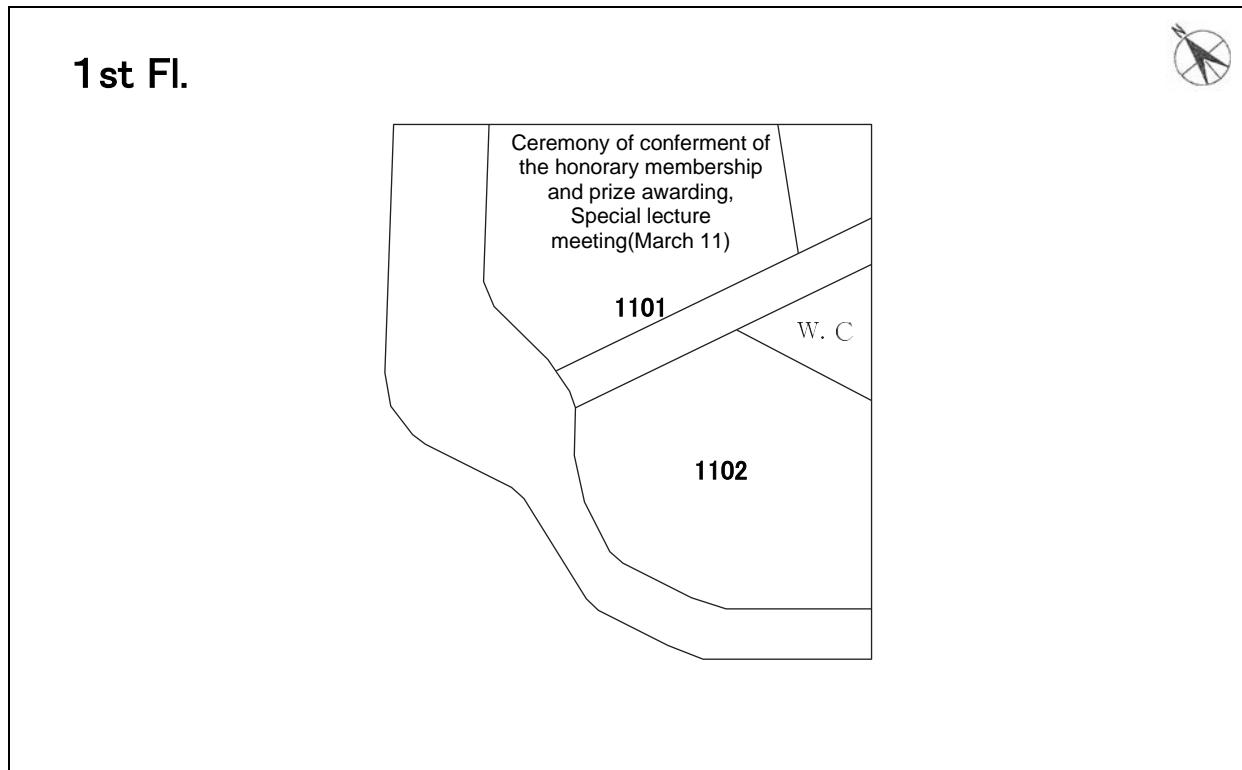


No-smoking throughout the premises.

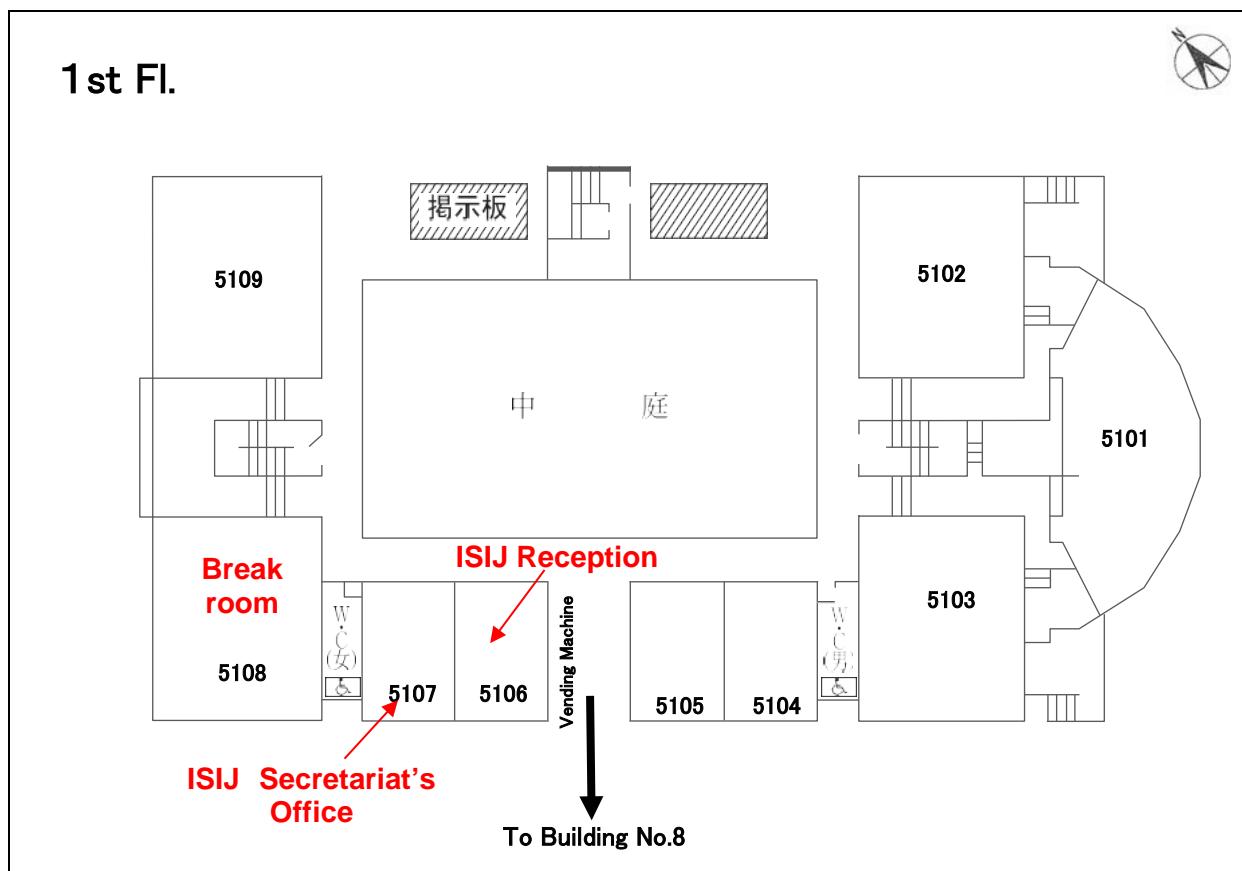
Smoking is prohibited everywhere on the property,  
including outside the buildings and in parking areas.

全面禁煙／全面禁煙／전면 금연

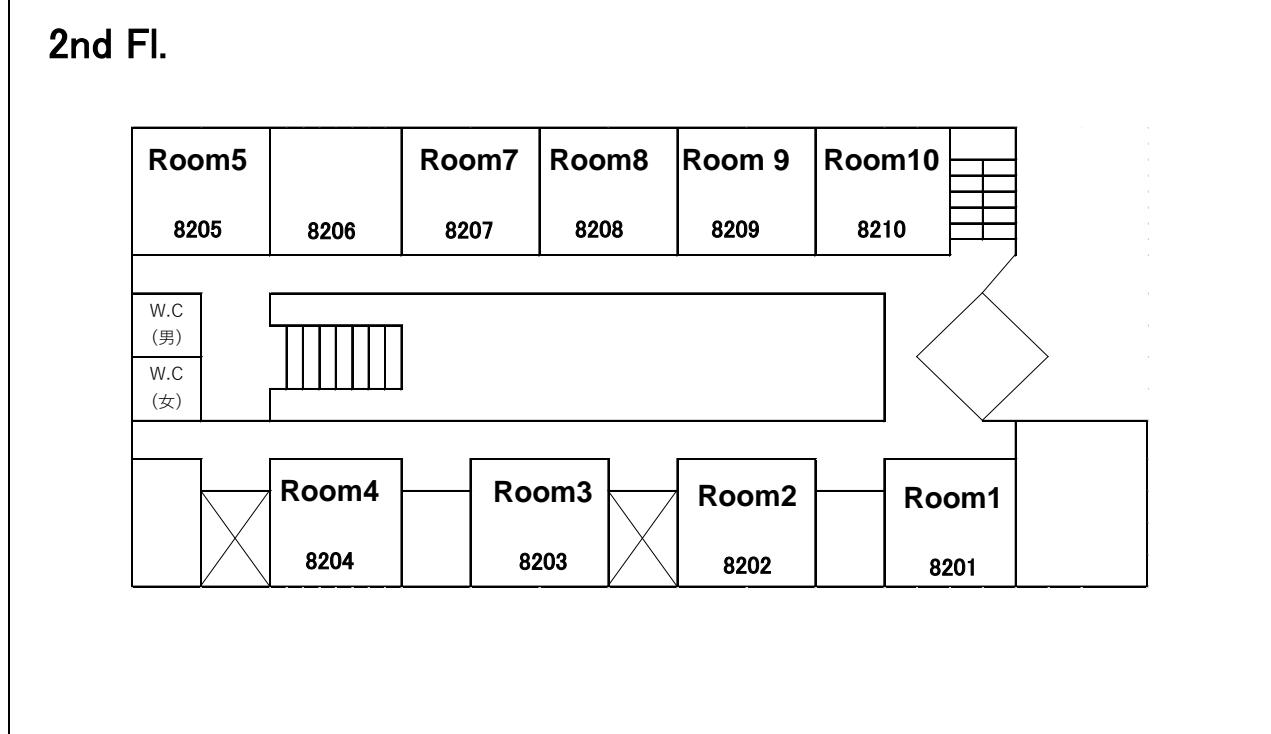
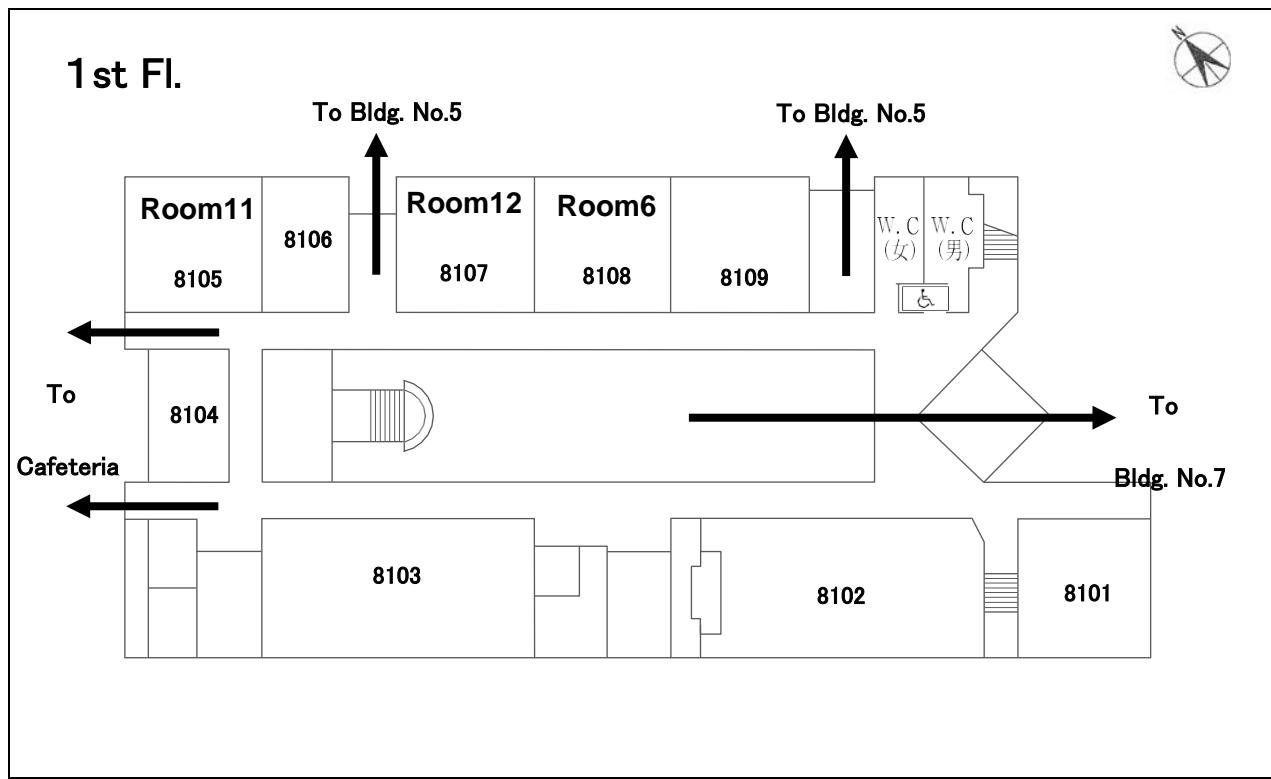
## Building No.1



## Building No.5



# Building No.8



# Program of the 191<sup>st</sup> ISIJ Meeting (March 11-13, 2026)

## Discussion Sessions

### Sustainable Systems

Lecture No.	Discussion Session	Title	Speaker	Page
<b>Utilization of phosphate in the steelmaking slag as fertilizer</b>				
D1	Production of phosphorus concentrated slag by high-temperature treatment of steelmaking slag	S. Kakimoto	• • •	1
D2	Characteristics of element uptake by crop plants from phosphorus-concentrated slag fertilizer	J. Wasaki	• • •	3
D3	The effect of intercropping on element uptake from phosphorus-concentrated slag fertilizer	M. Abiko	• • •	5
D4	The characteristics and effective use of phosphorus-concentrated steelmaking slag as fertilizer -Why does Japanese agriculture expect for phosphorus-concentrated steelmaking slag?-	M. Tani	• • •	7
D5	Validation of effects of phosphorous-concentrated steelmaking slag through field trials (Field cultivation trials are shortcuts for social implementation)	H. Shimada	• • •	11
D6	Fertilizer potential of low phosphorus hot metal pretreatment slag	H. Yano	• • •	15

### Instrumentation, Control and System Engineering

#### Current state and challenges for future advancement of instrumentation technology for iron making process Part 4

D7	Measurement technique of internal state in iron making process for stable operation	M. Fujigaki	• • •	17
D8	Heat generation and heat transfer behavior and evaluation of adsorption heat efficiency of iron-bearing materials for iron ore sintering process	H. Yanagida	• • •	18
D9	Temperature measurement of magnetite during microwave heating reduction using high-temperature optical fiber sensors	Y. Okabe	• • •	22
D10	Weight change and In Situ gas analysis during gas reduction of hematite using TDLAS	T. Kon	• • •	24
D11	Water content measurement of raw materials using the impedance method	M. Futagawa	• • •	26
D12	Vibration measurement technology of magnetic material by vibro-radar and its applicability to pig manufacturing process stabilization	T. Miwa	• • •	27

### Processing for Quality Products

#### Rolling technology for high-quality, high-functional bar and wire rods

D13	(Keynote Lecture) 50 Years of bar and wire rolling: The failures and self-reflection	M. Asakawa	• • •	31
D14	Effect of entry tension on twisting behavior at the exit in wire rod rolling	R. Ifuku	• • •	35
D15	Computer simulation of wiredrawing (Perspective for multi-scale materials analysis)	K. Saitoh	• • •	39
D16	(Invited Lecture) Evolution of motor drive and control technologies in bar and wire rod rolling mills	S. Ishibashi	• • •	40
D17	(Invited Lecture) Hot rolled wire eddy current testing	H. Yoshikawa	• • •	44

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## High Temperature Processes

Lecture No.	Title	Speaker	Page
<b>New ironmaking 1</b>			
1	Reduction kinetics of hematite powder by pulsed-discharged spouted bed	P. Khlaisongkhram	48
2	Effect for reduction behavior of iron oxide ore-charcoal composite containing thiophene-type organic sulfur	Y. Iwatani	49
3	Effect of pyrolysis of goethite phase on the reduction behavior of lump ore	K. Uno	50
<b>New ironmaking 2</b>			
4	Kinetic analysis of CH <sub>4</sub> cracking reaction in direct reduced iron	N. Maeda	51
5	Influence of reduction conditions on the low-temperature oxidation of direct reduced iron (DRI)	S. Sano	52
6	Melting behavior of metallic iron using carbonaceous material recovered from exhausted gas with iron whisker as carburizing agent	R. Higashi	53
<b>Frontier of R&amp;D for production process of high-alloy steels and high-quality alloy steels 1</b>			
7	Development of a molten steel [Cu] prediction model and scrap blending guidance system for electric arc furnaces	Y. Miwa	54
8	Improving the durability of RH immersion tube refractories during alloy 400 production	K. Aratani	55
9	Optimization of blowing oxygen conditions for improving efficiency in stainless steel refining furnaces	Y. Araki	56
10	Quality improvement of ESR ingots for high-strength stainless steel	K. Sekizawa	57
11	Detoxification of stainless-steel slag with resource recovery of hexavalent chromium and calcium	H. Kubo	58
<b>Frontier of R&amp;D for production process of high-alloy steels and high-quality alloy steels 2</b>			
12	Equilibrium between molten Fe-Ni alloy and Al <sub>2</sub> O <sub>3</sub> -MnO-SiO <sub>2</sub> slag	H. Fukaya	59
13	Distribution of inclusions in unidirectionally solidified Fe-36%Ni alloy	G. Nakamura	60
14	Effect of Fe and Cr on Ti-n equilibrium in molten Ni alloys at 1873 K	S. Narita	61
15	Formation behavior of sulfides during solidification of Fe-Cr-Mn-S alloys	R. Watanabe	62
16	Equilibrium between molten Fe-Mn-Ti-S alloy and sulfide	Y. Sakurada	63
<b>Evaluation of agglomerated ore</b>			
17	<i>In-situ</i> observation of cracks formation in iron ore pellets under hydrogen reduction conditions	K. Momma	64
18	Evaluation of the reducibility of low-grade iron ore pellets	G. Sato	65
19	Effect of distribution of MgO source on sinter microstructure and low-temperature reduction disintegration	M. Yamakawa	66
20	3D microstructure analysis of reduced sinter ore using X-ray CT	T. Takayama	67
<b>Coke, Refractory</b>			
21	(ISIJ Young Researcher Award) Investigation of the governing mechanisms of coke size	S. Matsuo	
22	Influence of the pore structure on coke strength evaluated using DEM	M. Watanabe	68
23	Damage mechanism and service life improvement of torpedo car roof refractories	W. Hirata	69
<b>Blast furnace</b>			
24	(Paper Award for Young Researchers) Effect of the accumulation of molten slag and iron at the blast furnace hearth on the gas pressure drop	R. Matsunaga	70
25	Development of unsteady state analysis method using mathematical model for blast furnace	Y. Inagaki	71
26	Evaluation of local fluidization behavior caused by shaft gas injection into a blast furnace based on cold model experiments	S. Uchida	72
<b>Transport phenomena and high temperature reactions</b>			
27	(Sawamura Award) Compositional dependence of phonon mean free path in silicate glasses	S. Sukenaga	73
28	Measurement of dissolution rate of MgO into static molten CaO-FeO-SiO <sub>2</sub> slag	K. Urata	74
29	Thermal conductivity measurement of the Na <sub>2</sub> O-SiO <sub>2</sub> melts by hot-wire method with optimized current	K. Saito	75
30	Kinetics study of manganese direct alloying by aluminothermic reduction from ladle refining slag	K. Sripushpa	76

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## Nobel processing forum research introduction 1

31	Advancing microwave-assisted SiC synthesis technology for simultaneous conversion of silicon sludge and CO <sub>2</sub>	J. Fukushima	• • •	77
32	Microwave effect and local thermal equilibrium	K. Kashimura	• • •	78
33	Temperature recovery of undercooled liquid alloy under imposition of rectangular wave electromagnetic force	M. Makimura	• • •	79
34	Manufacturing of uniform-diameter silicon spheres for solar cells by application of electric field and intermittent electromagnetic force	S. Yamaji	• • •	80

## Nobel processing forum research introduction 2

35	Model experiments on dispersion and orientation of fibers in liquid by ultrasound	T. Kobuchi	• • •	81
36	The consolidation mechanism of the slag from reducing electric furnace	T. Kozuka	• • •	82
37	High-efficiency processing of iron and steel by-products via electrical pulse disintegration	H. Kubo	• • •	83

## Quantification of solidification phenomena using multiple approaches VII-1

38	Three-dimensional and time-resolved observation of growth and settling behaviors of equiaxed dendrites using 4D-CT	T. Narumi	• • •	84
39	Measurement of crystallographic orientation distribution before and after massive-like transformation in Fe-0.05C-0.6Mn-0.3Si using 4D-CT+XRD	K. Tamura	• • •	85
40	Estimation of material parameters from solidification microstructure images using high-performance phase-field simulation and machine learning	T. Takaki	• • •	86
41	Semi-solid deformation simulations with multi-phase-field lattice Boltzmann model: evaluations for effects of grain morphology	N. Yamanaka	• • •	87
42	Analysis of microsegregation under liquid flow using lattice boltzmann – Quantitative CA model	K. Kaneko	• • •	88

## Quantification of solidification phenomena using multiple approaches VII-2

43	Development of a CALPHAD-coupled phase-field model for predicting microstructure evolution in Fe-C steels	T. Morino	• • •	89
44	Molecular dynamics analysis of solid-liquid interfacial energy in undercooled system	K. Urashima	• • •	90
45	Free energy surface of nucleation via metadynamics	T. Yamamura	• • •	91
46	Al-Cu alloy solidification interfaces by large-scale coarse-grained molecular dynamics	Y. Shibuta	• • •	92

## Microstructure formation and fundamentals of solidification 1

47	(Mishima Medal) Research and development on controlling the casting microstructure of steel	N. Yoshida		
48	(Tawara Award) Influence of solidification conditions on formation of carbides and shrinkage porosity in 8%Cr type die steel	Y. Sumi	• • •	93
49	Measurement of partition coefficient at low solid fraction in Fe-based alloy with peritectic reaction	S. Yano	• • •	94

## Microstructure formation and fundamentals of solidification 2

50	(Sawamura Award) Nucleation-controlled selection of metastable ferrite in solidification of Fe-22mass% Mn-0.7mass% C alloy	T. Narumi	• • •	95
51	Influence of Si, Mn on subscale properties	T. Odagaki	• • •	96
52	(ISIJ Research Promotion Grant) Inverse columnar-equiaxed transition in stainless steels melt by laser beam for additive manufacturing	M. Okugawa	• • •	97

## Young engineer session of coke-making 1

53	Improvement of coking chamber wall repair methods	N. Sato	• • •	98
54	Air port blockage prevention by protection block installation	K. Yamaguchi	• • •	99
55	Recovery of the coke oven conditions (Cause of deterioration coke oven conditions and reduction of pushing electricity by coal blending)	K. Yamada	• • •	100
56	Recovery of the coke oven conditions (Decrease of non-operation chambers and recovery of production amount)	S. Shiratori	• • •	101
57	Recovery of the coke oven conditions (Improved repair method for cross tie-rod of coke oven)	Y. Nishina	• • •	102

## Young engineer session of coke-making 2

58	Estimation of the thermal history of coke using crystallite size	Y. Kimura	• • •	103
59	Production of high strength carbon agglomerates from CO gas	K. Takehara	• • •	104
60	Application of cellulose nanofibers as a binder of coal briquettes	T. Takashima	• • •	105
61	Approaches for heat exchanger capacity restoration in the by-products recovery process	T. Shima	• • •	106

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## Electric furnace and secondary refining

62	Numerical simulation of molten steel flow in DC electric furnace with turn coil	Y. Ohki	• • •	107
63	Influence of plasma including nitrogen on Cu and Sn removal from molten pig iron (2) (Evaluation of the effect of plasma irradiation vs non-irradiation on Cu and Sn enrichment in particles scattered by bubble bursting)	T. Gunji	• • •	108
64	Fouling inhibition for cooling water system of vacuum degassing equipment	T. Ono	• • •	109

## Thermodynamics

65	(Scientific Achievement Merit Prize) Fundamental research and applications in ferrous metallurgical science and technology	Y. Kobayashi	• • •	
66	Distribution of phosphorus between $\text{Ca}_2\text{SiO}_4$ + liquid multi-phase slag and molten iron at 1573 K	M. Hasegawa	• • •	110
67	Chemical equilibrium of carbon in recycled material of stainless steel	H. Todoroki	• • •	111

## Inclusion

68	(Distinguished Article Award) Direct measurement of agglomeration force exerted between alumina particles in molten steel	K. Sasai	• • •	112
69	(Tawara Award) Agglomeration force exerted between various types of solid-phase oxides in molten steel	K. Sasai	• • •	113
70	Effect of Ce on TiN inclusions and As-cast structure of low carbon titanium micro-alloyed steel	Z. Ma	• • •	114
71	Formed inclusions in Al-killed steel melts refined by a $\text{CaO}-\text{Al}_2\text{O}_3-\text{MgO}$ refining slag	M. Jiang	• • •	115

## Separation and recovery of elements (High Temperature Processes • Sustainable Systems)

72	(ISIJ Research Promotion Grant) Effect of carbon materials on the carbothermic reduction of phosphoric acid for sustainable white phosphorus production	A. Siahaan	• • •	116
73	Separation of phosphorus from high phosphorus Mn ore using acetylacetone	G. Wenfeng	• • •	117
74	(ISIJ Research Promotion Grant) Magnetic- and vibration-assisted separation behavior of steel-copper mixed powders and motor-derived crushed powders	Y. Koizumi	• • •	118

## Slag recycling (High Temperature Processes • Sustainable Systems)

75	Removal of phosphorus from steelmaking slag in molten $\text{CaCl}_2$	X. Yang	• • •	119
76	Dissolution of nutrient components from steelmaking slag in upland soil	T. Iwama	• • •	120
77	Effect of biofilm coating on the cloudiness of steelmaking slag immersed in artificial seawater	N. Hirai	• • •	121

## Sustainable Systems

### Lecture No.

### Plenary Session

### Title

### Speaker

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## Cutting-edge of green technologies for carbon neutral of steelmaking industry

78	Evaluation of the input and output performance in a packed bed system with medium to high-temperatures latent heat storage pellets using a numerical model	T. Nakamura	• • •	122
79	Effect of superheating on the solidification heat-release temperature of Al-based latent heat storage microcapsules	Y. Shimizu	• • •	123
80	Environmental trade-offs of steel industry decarbonization: A life cycle assessment of by-product losses and burden shifting in the transition from BF-BOF to EAF steelmaking	A. Adeniyi	• • •	124
81	Energy saving through heat pump integration in steel sheet treatment process	T. Uchino	• • •	125

## Historical metallurgy

82	Visualization of high purity Iron (Tamahagane) by steel art engineering (Metallurgical Yantra)	Y. Matsui	• • •	126
83	Scientific analysis of painting materials in the 17 <sup>th</sup> and 18 <sup>th</sup> century greek icons	Y. Homma	• • •	127
84	Scientific analysis on the degradation products of combined metal leaf (Awasehaku) used in Kirikane	A. Hotokeyama	• • •	128

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## Instrumentation, Control and System Engineering

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<b>Instrumentation</b>			
85	Development of in-line oxide film thickness measurement technique for CGL direct-fired furnace	T. Okabe	• • • 129
86	Dimensional measurement of steel materials during conveyance using microwave sensors under interference from surrounding equipment	K. Murota	• • • 130
87	(ISIJ Research Promotion Grant) Eddy current testing of non-magnetic metal plates using optically pumped magnetometer	T. Sasayama	• • • 131
88	Enhancing thermal robustness of a thin-plate width gauge and verification by camera pose monitoring	T. Miura	• • • 132

## System

89	A proposal for systemic optimization considering energy flows in steel production (Building a model incorporating energy flow into production planning problems)	M. Hamada	• • • 133
90	Development of a deep learning-based technology for automatic fracture surface identification	K. Hirano	• • • 134

## Processing for Quality Products

Lecture No.	Title	Speaker	Page
<b>Rolling</b>			
91	(Shiraishi Commemorative Prize) Research into improving the performance of rolling and processing rolls for steel production	M. Ueno	
92	Elasto-plastic 3D finite element analysis of stress distribution in a steel sheet during cold rolling	N. Honda	• • • 135
93	Control and setup of strip wedge and crown in hot finisher rolling	Y. Anbe	• • • 136

## Scale

94	Liquid-phase stabilization induced by elemental enrichment at grain boundaries during high-temperature oxidation of Cu-containing medium-carbon steel	Y. Tateyama	• • • 137
95	The effect of Si and scale microstructure on the formation of liquid Cu in high temperature oxidation	H. Kumeta	• • • 138
96	Behavior of tramp element at solid iron / iron oxide interface	T. Miki	• • • 139
97	Behavior of molten Cu exogenously introduced at the scale/iron interface	R. Sugiyama	• • • 140
98	Porous oxide layers in water spray cooling	O. Resl	• • • 141

## Deformation and surface

99	(Nishiyama Commemorative Prize) Studies on plasticity theory of polycrystalline metals	K. Yoshida	• • • 142
100	Elastic-plastic incremental simulation by the continuum theory of dislocations	K. Komori	• • • 143
101	Development of high-efficiency turning and surface microstructure control process for Ti-6Al-4V alloy utilizing tool characteristics	D. Miyajima	• • • 144
102	Nitriding process on steel surfaces in an open atmosphere using laser-induced plasma	E. Hashiba	• • • 145

## Joining

103	(Nishiyama Commemorative Prize) Weld solidification cracking susceptibility of stainless steels and the prediction method	K. Kadoi	• • • 146
104	(Tawara Award) Formation mechanism of joint interface in cold spot joining method and its joint properties	T. Aibara	• • • 147
105	(ISIJ Research Promotion Grant) Microstructure and mechanical properties of linear friction welded S45C joints	J. Choi	• • • 148

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## Microstructure and Properties of Materials

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<b>Hydrogen embrittlement 1</b>			
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107	(ISIJ Research Promotion Grant) Atomistic model analysis of hydrogen trapping behavior at strained grain boundaries in pure Fe	R. Matsumoto	150
108	First-principles calculations of hydrogen trapping energy at some edge dislocation cores in iron	M. Yamaguchi	151
109	Construction of a fast and highly accurate Fe-H binary system machine learning interatomic potential	K. Ito	152
110	Prediction of the effect of alloying elements on hydrogen solubility of $\alpha$ -Fe using first-principles calculations	K. Ito	153
<b>Hydrogen embrittlement 2</b>			
111	(ISIJ Young Researcher Award・ISIJ Research Promotion Grant) Time-dependent behavior of hydrogen uptake into pure iron during cathodic hydrogen charging	S. Ajito	
112	(ISIJ Research Promotion Grant) Imaging hydrogen entry behavior into a high-strength steel inside crevice	H. Kakinuma	154
113	Evaluation of hydrogen embrittlement cracking behavior of ultra-high strength steel sheets under different hydrogen charging conditions	M. Yagura	155
114	Effects of pre-strain and evaluation methods on hydrogen embrittlement of austenitic stainless steels	M. Kawamori	156
<b>Strength and deformation behavior 1</b>			
115	(Nishiyama Commemorative Prize) Research and development to improve performance of high strength steels	T. Murakami	157
116	Inhomogeneity of deformation and transformation in multi-phase steel containing retained austenite	Y. Murakami	158
117	Unique deformation behavior of Fe-30Ni metastable austenitic alloy processed by cyclic-transformation	M. Dono	159
118	Dynamic strain aging and strain rate sensitivity in carbon-added Fe-Cr-Ni austenitic steels	H. Nishida	160
119	(Nishiyama Commemorative Prize) Influence of alloy elements on the reheat cracking susceptibility in weld metal of Cr-Mo steel	M. Yuga	161
<b>Martensitic transformation 1</b>			
120	(Nishiyama Commemorative Prize) Variant pairing rule and its geometry in $\alpha'$ -martensite	T. Inamura	162
121	Calculation of martensite transformation curves based on effects of neighbor austenite orientation	T. Tomida	163
122	Effect of pre-existing BCC phases on martensitic transformation in steels	M. Takahashi	164
<b>Martensitic transformation 2</b>			
123	Characteristics of strain-induced martensitic transformation	Y. Kinoshita	165
124	in-situ high-resolution imaging and 3D crystallographic analyses for FCC/HCP/BCC transformation by synchrotron X-ray	O. Takakuwa	166
125	3D in-situ characterization for deformation-induced martensitic transformation in austenitic steel by synchrotron X-ray nano-tomography	T. Iwano	167
126	(ISIJ Research Promotion Grant) Phase stability and deformation behavior in the stir zone of friction stir welded Fe-Mn-Si seismic damping alloy	T. Yamashita	168
<b>Surface treatment &amp; Corrosion 1</b>			
127	(Shiraishi Commemorative Prize) Degradation mechanisms of steel materials under harsh environments —Scaling and corrosion in geothermal power plants—	M. Morita	
128	(Nishiyama Commemorative Prize) Electrochemical study on corrosion and hydrogen embrittlement of steels	Y. Sugawara	169
129	(Nishiyama Commemorative Prize) Study on solution technologies for corrosion prevention of steel products	D. Mizuno	170
130	(ISIJ Young Researcher Award・ISIJ Research Promotion Grant) Localized corrosion mechanisms and improvement of corrosion resistance of steels	M. Nishimoto	
131	Investigation of corrosion resistance of steel products under dust from ironmaking process	M. Omoda	171

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## Surface treatment & Corrosion 2

132 (ISIJ Young Researcher Award) Development of technology to prevent dross defects in Molten Zinc Bath galvanizing process	T. Konishi	172
133 Effect of Si and Mn in steel sheets on solid-liquid interfacial reactions during hot-dip Zn-55%Al alloy galvanizing	D. Kim	172
134 Structural control of granular chromium coatings in electroplating for can steel sheets	Y. Nakagawa	173
135 Deposition characteristics of Cr on Ni alloy layer in Cr plated steels for can	Y. Kawamura	174

## Strength and deformation behavior 2

136 (Nishiyama Commemorative Prize) Microstructure control and ductile fracture behavior of high strength steel	M. Azuma	175
137 (Nishiyama Commemorative Prize) Development of ultra high strength steel with high formability for automobiles	Y. Futamura	176
138 Microstructural factors affecting uniform elongation of high-strength, high-ductility, high-carbon steel with different tempering temperatures	Y. Sato	177
139 Effect of initial nodule size on impact toughness of elongated pearlitic steel	R. Ueji	178
140 Influence of aging on the Hall-Petch Coefficient of Fe-3mass%Si	K. Hani	179

## Strength and deformation behavior 3

141 (Paper Award for Young Researchers) Effects of manganese on microstructure and work-hardening behavior of low-carbon lath martensitic steel	K. Ueno	180
142 Effect of dislocation characteristics on deformation behavior in tempered martensite and bainite of low-alloy steel	K. Miwa	181
143 Effect of tempering on non-uniform microscopic deformation behavior of Martensitic steel	K. Akizuki	182
144 Effect of carbon content on plastic deformation behaviour of martensitic steels using high-resolution digital image correlation	S. Liu	183
145 Development of strain scanning method with transmission geometry using synchrotron-based high-energy X-rays	Y. Hayashi	184

## Electrical steel

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147 Persistent slips and evolution of dislocation structures in Fe-3wt.% Si alloy	K. Aranami	186
148 Controlling crystallographic texture of Fe-6.5Si flake powder and effect on magnetic properties	S. Motozuka	187

## Recrystallization & Texture

149 (Nishiyama Commemorative Prize) Phase-field simulation of grain growth in systems containing pinning particles	Y. Suwa	188
150 Crystal plasticity finite element simulation of one-way and two-way cold rolling in pure iron	A. Yamaguchi	189
151 Prior austenite grain refinement in an age-hardened martensitic steel by cold rolling or severe plastic deformation followed by short austenitization	G. Castro Guiza	190
152 Effect of initial microstructure on recrystallization mechanism of pearlite	D. Adachi	191

## Heat resistant steel・Alloy 1

153 (ISIJ Young Researcher Award) Microstructure characterization for understanding the creep properties of heat-resistant steels	T. Hatakeyama	192
154 (ISIJ Research Promotion Grant) Evaluation of initial oxidation and corrosion of SUS316 steel in acidic supercritical water	Y. Toda	192
155 Stress dependence of minimum creep rate and creep deformation behavior of Gr.91 and 2.25Cr-1Mo steels	F. Abe	193

## Heat resistant steel・Alloy 2

156 Evaluation of hydrogen effects on creep properties of SUS316L using hollow specimens	K. Saito	194
157 Microstructures and mechanical properties of austenitic laves steel fabricated by L-PBF process	Y. Hasebe	195
158 Effect of rolling reduction of cold rolling in microstructure after aging of $\gamma'$ -phase precipitation-strengthening Ni-based alloy	F. Ichikawa	196

## Grain boundary segregation

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160 Atomistic study of grain boundary character influence on solute segregation in $\alpha$ -Fe: Symmetric tilt and twist grain boundaries	L. Fan	198
161 Investigation of hydrogen segregation at the grain boundaries with different crystallographic character using atomic-scale simulations	K. Matsubara	199

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162 (Sawamura Award) Multi-aspect characterization of low-temperature tempering behaviors in high-carbon martensite	Y. Zhang	• • •	200
163 Effect of Ti and Nb on hardness after low temperature aging in ferritic steel with supersaturated carbon	Y. Kobayashi	• • •	201
164 Characterization of the interaction mechanism between interphase precipitated alloy carbides and dislocations by transmission electron microscopy	Y. Kawahara	• • •	202

## Diffusional transformation

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167 Austenite growth and associated elemental partitioning during carburization of Fe-Mn alloy	K. Sato	• • •	205
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J13	Effect of rare-earth oxides on MoO <sub>3</sub> solubility in (Na <sub>2</sub> O, CaO) • 2SiO <sub>2</sub> melts	Q. Huang	• • • 253

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Session Room	March 11 (Wed.)		March 12 (Thu.)		March 13 (Fri.)	
	AM	PM	AM	PM	AM	PM
Session Room 1 No.8 Bldg. 2F 8201	New ironmaking 1・2 [1-6] (9:20-11:35)	-	Evaluation of agglomerated ore [17-20] (10:00-11:20)	Coke, Refractory / Blast furnace [21-26] (14:20-16:35)	Young engineer session of coke-making 1・2 [53-61] (9:00-12:15)	Electric furnace and secondary refining [62-64] (13:00-14:00)
Session Room 2 No.8 Bldg. 2F 8202	Frontier of R&D for production process of high-alloy steels and high-quality alloy steels 1・2 [7-16] (9:00-12:30)	-	Transport phenomena and high temperature reactions [27-30] (10:30-11:50)	Nobel processing forum research introduction 1・2 [31-37] (14:00-16:40)	-	-
Session Room 3 No.8 Bldg. 2F 8203	Approaches to heat transfer and melting mechanisms of scrap in electric arc furnaces (9:00-12:10) [Charge-Free]	-	Quantification of solidification phenomena using multiple approaches VII-1・2 [38-46] (9:00-12:20)	Microstructure formation and fundamentals of solidification 1・2 [47-52] (14:00-16:20)	Thermodynamics / Inclusion [65-71] (9:10-11:50)	ISIJ and JIMM Joint Sessions Physico-chemical properties of high temperature melts 1・2 [J7-J13] (13:00-15:40)
Session Room 4 No.8 Bldg. 2F 8204	Utilization of phosphate in the steelmaking slag as fertilizer [D1-D6] (9:00-12:30)	-	Cutting-edge of green technologies for carbon neutral of steelmaking industry [78-81] (10:00-11:20)	Separation and recovery of elements / Slag recycling [72-77] (14:30-16:45)	-	-
Session Room 5 No.8 Bldg. 2F 8205	-	-	Supply-Demand matching for steel scrap quality (9:30-11:40) [Charge-Free]	Historical metallurgy [82-84] (14:00-15:00)	-	-
Session Room 6 No.8 Bldg. 1F 8108	-	-	-	ISIJ and JIMM Joint Sessions Titanium and its alloys 1・2 [J1-J6] (14:00-16:20)	Instrumentation / System [85-90] (9:00-11:20)	Current state and challenges for future advancement of instrumentation technology for iron making process Part 4 [D7-D12] (13:20-16:00)
Session Room 7 No.8 Bldg. 2F 8207	-	-	Rolling technology for high- quality, high-functional bar and wire rods [D13-D17] (9:00-12:00)	Rolling / Scale [91-98] (14:00-17:00)	Deformation and surface / Joining [99-105] (9:00-11:40)	-
Session Room 8 No.8 Bldg. 2F 8208	Hydrogen embrittlement 1・2 [106-114] (9:00-12:15)	-	Final report of the research group on "Local plasticity-driven damage evolution and fracture (9:00-17:30) [Charge-Free]	Innovative evaluation techniques for hydrogen entry and hydrogen trapping - VI (9:00-12:15) [Charge-Free]	Hydrogen embrittlement 3・4 [169-177] (12:50-16:00)	
Session Room 9 No.8 Bldg. 2F 8209	-	-	-	Surface treatment & Corrosion 1・2 [127-135] (14:00-17:20)	Stainless steels [178-182] (9:40-11:20)	High Functionality of Stainless Steel Leading to a Sustainable Society (13:00-16:00) [Charge-Free]
Session Room 10 No.8 Bldg. 2F 8210	Strength and deformation behavior 1 [115-119] (10:00-11:40)	-	Strength and deformation behavior 2 [136-140] (10:00-11:40)	Strength and deformation behavior 3 [141-145] (14:00-15:40)	Ductility, Toughness, and Machinability [183-187] (10:00-11:40)	Fatigue [188-191] (13:00-14:20)
Session Room 11 No.8 Bldg. 1F 8105	-	-	Electrical steel / Recrystallization & Texture [146-152] (9:00-11:40)	Heat resistant steel+ Alloy 1・2 [153-158] (13:30-15:45)	Approach of grain boundary engineering for achieving high-performance steels (9:00-16:00) [Charge-Free]	
Session Room 12 No.8 Bldg. 1F 8107	Martensitic transformation 1・2 [120-126] (9:20-11:55)	-	Grain boundary segregation / Aging and precipitation [159-164] (9:30-11:45)	Diffusional transformation [165-168] (14:00-15:20)	Microstructure prediction / Microstructure control [192-199] (9:00-12:00)	-
Session Room 13 No.8 Bldg. 1F 8104	-	-	-	Crystal structure analysis / Precipitate and inclusion analysis [200-203] (15:00-16:20)	Surface and state analysis / Elemental analysis [204-207] (9:30-10:50)	-
	Ceremony conferment of the honorary membership and prize awarding, Special lecture meeting (13:30-17:20 at No.1 Bldg. Room1101)		Poster Session for Students (12:00-14:30 at No.13 Bldg. (Cafeteria) 3rd Fl. [Charge-Free])		ISIJ Beer Party (17:30-19:00 at No.13 Bldg. (Cafeteria) 2nd Fl. [1,000yen])	

[ ]: Lecture Number  
( ): Lecture Time  
 : Event to be held during the ISIJ Meeting (Symposium, Poster Session for students)